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RESEARCH AND DEVELOPMENT

MONTHLY REPORT

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OCTOBER 1981

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PROJECT TITLE : BIOTECHNOLOGY

PERIOD COVERED : SEPTEMBER 21 - OCTOBER 16, 1981

WRITTEN BY : Schulthess-D. (DIS)

CONTAMINATIONS

Contaminations of the 500-l fermenter and storage tanks in the LEAR pilot plant by bacterial cultures were found. 6 bacterial strains were isolated and sent out for identification.

YEAST ADAPTATION

Candida utilis from LEAR trial 8 was isolated after 2 months' continuous running. The isolated strain was compared with the original one in order to determine any changes in growth or denitration characteristics. No improved growth or denitration of the isolated strain in strip extracts could be found.

INFLUENCE OF NICOTINE ON DENITRATION

Strip extracts may contain up to 3000 ppm nicotine. This value is 5 to 10 times higher than those found in a stem extract. Growth, denitration and cell mass production of Candida utilis were measured in the presence of different nicotine concentrations in order to check the influence of this substance on the denitration process. Nicotine concentrations up to 2000 ppm did not influence the growth rate, denitration or cell mass production. At 3000 ppm nicotine the yeast showed the same growth rate, but it produced 35% less cell mass. Moreover, the denitration was not complete. Microscopical examination showed that, in these conditions, the yeast cells are much smaller and contain many granular structures (which may possibly be microsomes) as well as vacuoles.

Schulthess

DIS/jig/OCTOBER 26, 1981

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PROJECT TITLE : PROTAGORAS

PERIOD COVERED : SEPTEMBER 18 - OCTOBER 18, 1981

WRITTEN BY : Bindler-G.-N. (GNB)

TOBACCO EXTRACTION

100 g of Mexican Burley strips was extracted with water, acid, KOH and an enzyme solution. The solutions of the different steps were pooled, concentrated and added again to the resulting tobacco. The extraction conditions and the amount of the extracted protein as a % of the original protein content of the tobacco are shown in the table below :

	pH	Liquid	Enzyme (mg/100g tobacco)	Temp	Time (min)	% Protein extracted	Soluble %
Step I	5,9	H_2O	-	60	90	25	3,3
Step II	1,9	H_2O + acid	-	60	90	12	1,6
Step III	13,3	H_2O + KOH	-	60	90	15	0,8
Step IV	12,5	H_2O	400	-	180	19	0,8

The highest amount of protein that was extracted was 71% in the liquid phase of the extracted tobacco. Using water, acid, KOH and again water instead of enzyme extraction, only 58% proteins were found in the extract after these steps. By adding again the concentrated liquid phase, the resulting tobacco had nearly the same amount of $N\text{-}NO_3$, $N\text{-}NH_3$, but 15% less protein and N-TA than in untreated tobacco. The tobacco weight changed : it was 20% lower than the initial weight. This was partially due to a loss of tobacco during extraction.

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In a further step, tobacco will be extracted and the liquid phase will be deproteinated and added once again to the resulting tobacco which will be analysed.

REFERENCES

(1) Mangilli-M.-F., Notebook 80.08.05.
(2) Bindler-G.-N., Notebook 80.08.04.

GNB/jig/OCTOBER 30, 1981

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PROJECT TITLE : SAVOURY

PERIOD COVERED : SEPTEMBER 21 - OCTOBER 23, 1981

WRITTEN BY : Ghiste-P. (PAG)

The purpose of Project SAVOURY is to prepare flavours which, when pyrolized with sheet or tobacco, give Burley-type flavour characteristics.

PRODUCTION OF FLAVOURS

Three samples of reaction flavours were produced in the following conditions :

Flavour code	P-18(1)	P-19(2)	C-40/2(2)
Initial amino acid composition	st. hydr. H_3PO_4 10N	st. hydr. H_3PO_4 10N	st. hydr. HCl ± 6N
pH of reaction	6.7	9.2	9.2
Neutralizing agent	-	NH_4OH	NH_4OH
Sugar used	glucose	glucose	glucose
Total solid content %	40	40	45
Final pH	4.2	6.7	7.2
Temperature of reaction (°C)	90	90	90
Time of reaction (hr)	140	140	140
Ratio (aa/sugar)	1:1	1:1	1:1
Solvent	water	water	water

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COMMENTS

Trial P-18

An experiment was carried out in order to compare P-13/1 with P-16/1 (3) both of which were prepared in the same conditions. The experiment showed that there was no significant difference between them and they both have a similar taste. 14 litres of P-18 were prepared in order to reproduce flavours P-13/1 and P-16/1 (on a semi-industrial scale).

Flavour P-15 (3) appeared very promising as it "darkened" the taste of reconstituted tobacco thus making it more like air-cured tobacco. It was therefore decided to carry out trial P-19 in order to reproduce this flavour.

In order to determine the influence of the initial amino acid content, a flavour trial C-40/2 was prepared in the same conditions as P-19.

EVALUATION OF FLAVOURS

The flavours are currently being evaluated for the following objectives :

LTR sprayed with flavour should give the same flavour characteristics as an Italian Burley treated in the Burley line.

Flavours C-37/3, C-38/1, C-38/2 and P-17/1 were submitted to the PME Leaf Department for panel evaluation.

None of these flavours were entirely like those of Burley. Each had characteristics which were both like and unlike Burley.

It was decided to try to extract the Burley-type characteristics of these flavours.

After different extractions with organic solvents, it appeared that with 2-Methyl 1 propanol the fruity after-taste was extracted and the insoluble part gave a more "darkened" taste of reconstituted tobacco to make it more like air-cured tobacco.

More experiments should be performed next month to have more information on this matter.

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

REFERENCES

(1) Ghiste-P., Notebook 791210 p. 26 and 27.

(2) Ferraz-J., Notebook 800803 p. 20.

(3) Ghiste-P., Monthly Report, August 1981.

PAG/jig/OCTOBER 29, 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : LAUNDRYMAN

PERIOD COVERED : SEPTEMBER 16 - OCTOBER 15, 1981

WRITTEN BY : Piadé-J.-J. (JJP)

Further steps were taken to optimize reproducibility and accuracy of the simultaneous determinations of CO in MS and SS cigarette smoke through an instrumental set-up and improvements in sample storage and conditioning.

The new procedure was applied to experimental cigarettes from Development as well as to cigarettes from the salt impregnation study. In some cases average puff profiles were also computed.

Some preliminary investigations were performed to study the possibility and effectiveness of coal peak temperature monitoring by insertion of thermo couple microprobes into experimental cigarettes.

JJP/jig/OCTOBER 28, 1981

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PROJECT TITLE : ROSA

PERIOD COVERED : SEPTEMBER 23 - OCTOBER 16, 1981

WRITTEN BY : Murray-M. (MUM)

Preliminary analyses of the effect of six different filler additives on sidestream smoke nitrosamine delivery were carried out. Further analyses to confirm these results and to permit their interpretation have to be made.

MUM/jig/OCTOBER 28, 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : FIAT

PERIOD COVERED : SEPTEMBER 16 - OCTOBER 15, 1981

WRITTEN BY : Genoud-Y. (YVG)

The objective of project FIAT is to establish a method to determine the retention of certain components of cigarette smoke by filters, filter additives and adsorbents. In addition new and traditional filter additives have to be investigated using new methods.

SPECIFIC SURFACE OF ADSORBENTS AND RETENTION OF SELECTED COMPOUNDS

Four constant granulometry charcoals were selected with specific surfaces ranging from between 0 and 1300 m^2/g (BET). The charcoals were put into the cavity of an undiluted PSP filter and retention efficiencies of 9 major organic gas-phase components were determined under constant smoking conditions. A pumice stone-loaded PSP filter was taken as a reference and assigned a 0% retention value. Results are summarized in Table 1. As can be expected, CA - 86, which has a negligible specific surface and therefore no micro nor meso-porosities, yields a very poor retention. The efficiency of a given charcoal is not however directly linked to its specific surface, but rather to mesopore and micropore distribution and volumes.

SCREENING OF ADSORBENTS

An experimental device allowing rapid estimation of adsorbent efficiency is currently being set up (Fig. 1). The new device makes it possible to obtain essential information in about half a day, whereas the current complete study of a given adsorbent (including cigarette preparation and smoking) is a very lengthy procedure.

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The system can be used for 2 different determinations : obtention of adsorption and desorption isotherms and evaluation of the retention of selected gas-phase components in standard mixtures or smoke.

The study will be applied to make a first selection of the adsorbents. Only adsorbents showing interesting properties will be further tested in cigarette filters.

YVG/jig/OCTOBER 28, 1981

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Table 1 : CORRELATION BETWEEN SPECIFIC SURFACE AND ADSORPTION

	Pumice stone (reference)	CA-86	CA-145	CA-196	CA-189
Surface (m^2/g)	0	1	630	940	1300
Pore surface (m^2/g)	-	-	153	52	51
Medium radius of pore (Å)	-	-	17	8	8
Mesopore volume (cm^3/g)	-	-	0.34	0.08	0.09
Micropore volume (cm^3/g)	-	-	0.19	0.30	0.40
Organic gas phase retention (%)					
Acetaldehyde	0	5	74	44	62
Isoprene	0	0	72	45	59
Propanal	0	5	76	53	68
Furan	0	3	74	51	51
Acetone	0	3	76	55	66
Acrolein	0	5	77	55	54
Benzene	0	0	80	56	70
Acetonitrile	0	0	72	52	60
Toluene	0	5	73	54	62

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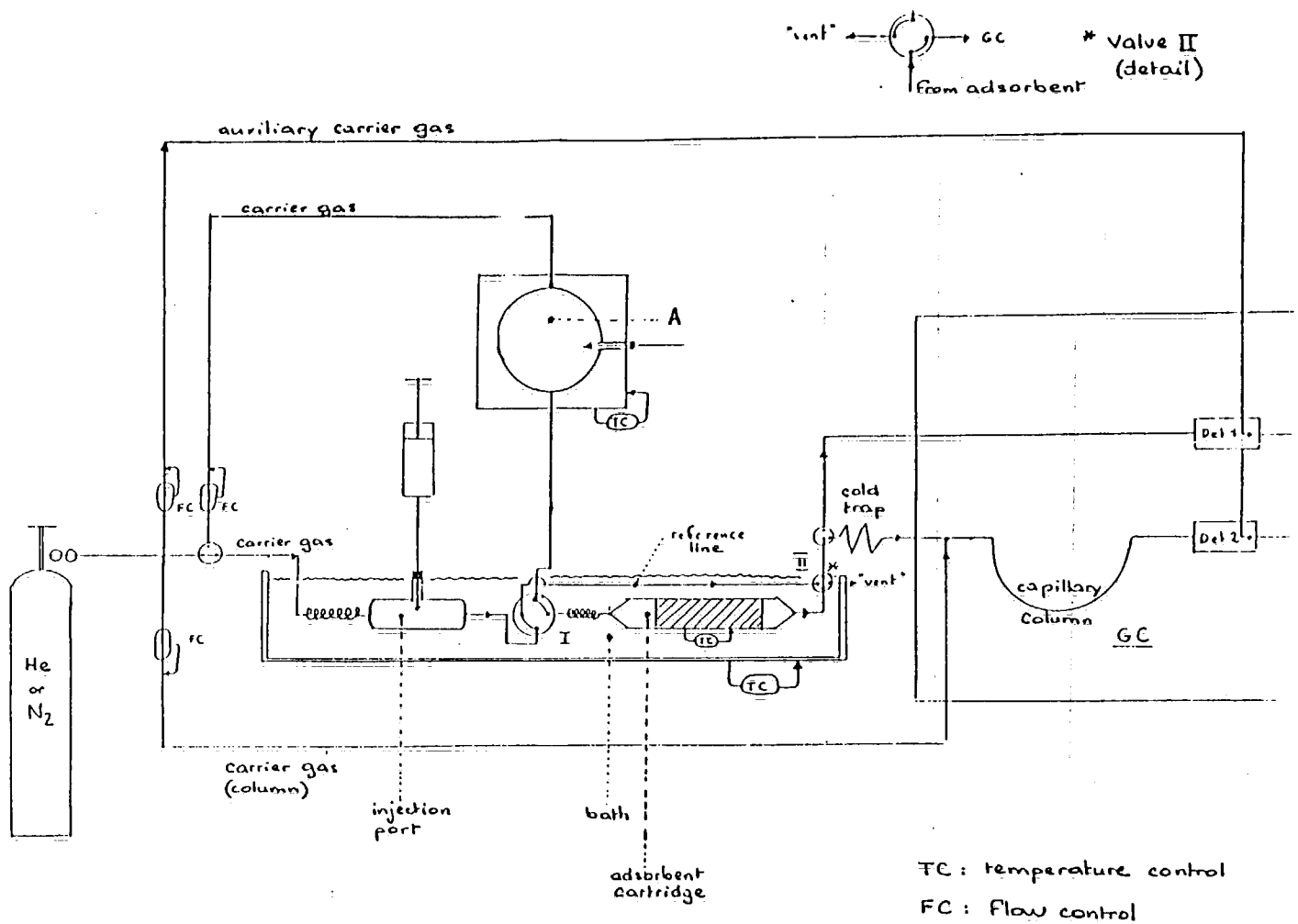

Figure 1 : Device for Testing Adsorbents

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PROJECT TITLE : IMPREGNATION / EXPANSION OF TOBACCO

PERIOD COVERED : SEPTEMBER 15 - OCTOBER 15, 1981

WRITTEN BY : VILLARD-J.-M. (JMV)

An experimental set-up for tobacco expansion by water "turgor conditioning" followed by freeze-drying was developed and several preliminary impregnation tests were run using both pure water and salt/water solutions.

JMV/jig/OCTOBER 27, 1981

0001440427

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : ANALYTICAL INVESTIGATIONS

PERIOD COVERED : SEPTEMBER 16 - OCTOBER 15, 1981

WRITTEN BY : Genoud-Y. (YVG), Lecoultre-E. (ETL) Moser-F. (FMO), Murray-M. (MUM), Piadé-J.-J. (JJP).

TRIACETIN (YVG)

Upon request from QC (1), triacetin samples from various companies were analysed for glycerol-propionate-diacetate (GPD) impurities. Triacetin/GPD : Unichema 0.46 %, Leek Chemicals 0.50 %, Steinfels 0.00 %, Amcel 0.95 %, Eastman (18.08.81) 1.00 %, Eastman (06.07.81) 1.10 %, Eastman (11.06.81) 0.81 %.

ORGANIC ACIDS (JJP/ETL)

Several experimental samples from Project LEAR submitted for N-nitrosamine analyses, were checked for ascorbic acid by reverse phase HPLC. The malic, malonic, citric, lactic and succinic acid contents of 6 experimental cigarettes were determined by ion-exchange HPLC.

Upon request from QC, PME samples of Belgian production for UK sale were investigated by GC^2 for monocarboxylic acid content. Substantial differences in the benzoic acid concentration were detected.

NITRITE REMOVAL (MUM)

A series of amides were tested for their reaction with nitrite ions in acidic tobacco extracts (2). Less than 3% of the initial nitrite remained 5 minutes after amide addition. The amides tested were azodicarboxamide, malonamide, acetanilide and dimethylformamide. The work has been terminated.

MENTHOL / WS 14 (MUM)

Comparative tests using Marlboro as control and North Pole cigarettes as test in olfactory threshold level determinations of menthol proved to be inconclusive (2). Comparative tests using WS 14 treated cigarettes and untreated controls indicated that the sidestream smoke of WS 14 treated cigarettes has a more intense odour than that of un-treated cigarettes. The test conditions involved sampling sidestream smoke from 2 sealed 1-litre vessels so that the smoke concentration was much higher than that encountered under normal smoking conditions.

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PROJECT TITLE : NITRATE-REDUCTION BY CONTROLLED FERMENTATION

PERIOD COVERED : SEPTEMBER 28 - OCTOBER 16, 1981

WRITTEN BY : Schulthess-D. (DIS)

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1. Pre-Engineering Study

A pre-engineering study for the industrial application of the LEAR process was initiated (1) and should be completed by December 18, 1981. The plant designed in this study is planned to treat 60 % of the Burley PME will use in 1985. Two studies will be made: one on a central European denitration plant denitrating 13'000 tons of Burley per year and the other on a smaller plant denitrating 3'000 tons of Burley per year.

2. LEAR Trial 8

LEAR trial 8, as reported earlier (2), was continued using a 1:10 Burley strip extract. After one week, considerable contaminations by bacteria were found, but the total denitration of the extract was not affected. The infections could not be eliminated by lowering the pH to 3.9-4.0 or by using acetic instead of citric acid.

3. LEAR Trial 10

The objective of LEAR trial 10 was to establish stable and controlled conditions for the denitration of Burley strip extract using the denitrated extract for the extraction of strips (extract recycling). The trial was run for three weeks, two weeks of which were spent recycling. No problems were encountered with the fermentation part. However, the trial had to be stopped after three weeks as problems arose with the installation (3). LEAR trial 10 was run in the following conditions :

pH	=	4.0
dilution rate	=	0.3 hr^{-1}
acid used	=	5 % phosphoric acid (85 %)
		95 % citric acid (45 %)
sugar to nitrogen ($N\text{-}NH_4$ + $N\text{-}NO_3$) ratio	=	25.8
extraction temperature	:	80 °C
extraction rate	:	1:15 (strip : water/extract)

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During the recycling of the extract, 20 % of the total liquid flow had to be replaced by water. This was done in order to compensate for the liquid which was lost during extraction, biomass separation and by evaporation. The extract that entered the fermenter had an average of 400 ppm $N-NO_3$ and 400 ppm $N-NH_3$. The total solids amounted to 4 %. 7 grams of biomass (dry weight) could be separated per liter of extract. The dried tobacco was free from nitrate. Other analytical data are not yet available.

4. References

1. Letter from Gaisch-H. and Friedrich-H. to distribution, September 10, 1981.
2. Ruf-C., Monthly Report, Nitrate-Reduction by Controlled Fermentation, September 1981.
3. Lüthi-N., Monthly Report, Pilot Plant Operations, October 1981.

Schmeltz

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PROJECT TITLE : PILOT-PLANT OPERATIONS

PERIOD COVERED : AUGUST 31 - OCTOBER 23 1981

WRITTEN BY : Lüthi-N. (NIL)

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1. EQUIPMENT

1.1. Rotocell Extractor

Due to infection problems during the fermentation of the strip-extract (1), the feedwater temperature of the strip-extraction was again increased to about 80°C. To maintain this temperature in the extractor, heat exchangers were ordered. They will be installed on some of the sections of the apparatus through which the extract is pumped.

1.2. Fermenter

Due to failure of the sealing liquid pump, the seal of the foam-breaker "Fundafom" had to be replaced. The automatic anti-foam injection system had to be checked again by the FTR Electronic Department.
We were also able to solve some problems which arose with pO_2 - measuring on our own.

1.3. Centrifuge

Since September two failures of the centrifuge motor have been observed. Fortunately a spare motor was available on both occasions.
Nevertheless, the supplier of another type of centrifuge has been contacted. Trials will be performed with one of these centrifuges in November.

2. RECYCLING OPERATION (2)

After about two weeks of closed loop operation, enormous clogging problems were encountered. In particular, the sterilization line of the extract and the tubes of the pumping system of the Rotocell extractor were found to be badly clogged with deposits. Analyses of the deposit will show which parameters such as acid, pH, feedwater temperature, etc have to be changed in order to avoid clogging during long periods of recycling.

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3. DRYING OF STRIPS

By using a laboratory air dryer, it is now possible to dry small quantities of extracted strips without breaking them too much. About 13 kg of strips were dried in this way and used in LEAR cigarette No. 5-17-3.

4. REFERENCES

1. Ruf-C : Monthly Report, Nitrate-Reduction by Controlled Fermentation, September 1981
2. Schulthess-D : Monthly Report, Nitrate-Reduction by Controlled Fermentation, October 1981

NIL/sde/OCTOBER 27 1981

0001404052

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PROJECT TITLE : CIGARETTE DEVELOPMENT 1

PERIOD COVERED : SEPTEMBER 26 - OCTOBER 26, 1981

WRITTEN BY : Singer-Z. (ZDS)

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303 COUNTRY SF

Objective

To develop a diluted version of the MARLBORO Finland in order to reduce the CO delivery in the mainstream smoke.

Description of samples and results

Using the standard MLF SF blend, the control cigarettes (MLF 03) and two diluted prototypes, differing from each other in the cigarette paper used, were made at ATO. The Benkert Z3/60 tipping paper, combined with the FU-POV 40 L wrap paper, gave a dilution value of 18 %. The trials were arranged to be run one after the other on the same machine.
For a description of the prototypes and their comparison with the standard MLF 03, see the table on the next page.

Comments

- All the physical parameters of our cigarette samples, except for the cigarette diameter, correspond to the specifications.
- Due to the less porous cigarette paper used on prototype No 3, the smoke figures are slightly higher in comparison with those of prototype No 2.

Cigarette paper	Permeability ($ml/min/cm^{-2}$)
TERCIG 08.5 ND 4321	60
TERCIG HI 10 DIN 60	68

- The essential CO-reduction is observed.
- Surprisingly, there is no difference in puff count between diluted and undiluted cigarettes. Theoretically, there should be a difference of about 0.5.
- The taste evaluation is under way.

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PROJECT NAME : C O U N T R Y S F PROJECT NO : 303 PROJECT LEADER : ZDS DATE : 10.26.1981

PROTOTYPE NO		1 P	2 P	3 P
BLEND NO		ML003 MLF	ML003 MLF	ML003 MLF
TA	%	1.73	1.73	1.75
NITRATE-NITROGEN	%	0.21	0.21	0.21
REDUCING SUGARS	%	9.7	10.3	10.4
FORMAT : DIAMETER	mm	7.88	7.88	7.87
FILTER LENGTH	mm	20	20	20
CIGARETTE LENGTH	mm	80	80	80
TOTAL WEIGHT	mg/cig.	996	995	996
TOBACCO WEIGHT AT 12 % O.V.	mg/cig.	768	763	762
CIGARETTE RTD	mm WG	99	88	90
DILUTION	%	0	18	18
CIGARETTE PAPER		Tercig H 10 DIN 60	Tercig H 10 DIN 60	Tercig 08.5 ND 4321
TIPPING PAPER		Tertip COP-S 466 M	Benkert Z3/60	Benkert Z3/60
FILTER : TYPE		Single	Single	Single
TOW		3.4 I / 46'000	3.4 I / 46'000	3.4 I / 46'000
PAPER		Tertip K	FU-POV 40 L	FU-POV 40 L
RTD	mm	57	62	62
TAR	mg/cig.	17.9	15.4	15.8
SN	mg/cig.	1.11	1.01	1.03
CO	mg/cig.	16.8	13.7	13.9
NO	mg/cig.	0.23	0.19	0.20
PUFF COUNT		8.9	8.9	8.9

THE CIGARETTES ARE SMOKED ON A PM 20 PORTS.

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

352 COUNTRY AU

Objective

To develop a diluted version of the MARLBORO AUSTRIA in order to reduce the CO delivery in the mainstream smoke.
DPM : 16 mg/cig.
SN : 1 - 1.1 mg/cig.

Summary

The present situation and the two possible guide-lines to be followed for achieving the above-mentioned objectives were discussed during the meeting held in Lausanne on October 31st 1981 :

1. The use of the diluted Pan-European MARLBORO which would lead to an increase in the basic blend portion in the MARLBORO AU blend bringing it up to 68 % and the consequent price increase of the latter.

2. The use of the MARLBORO AU for the further introduction of dilution that would require some essential modifications of the cigarette construction or require reinforcement of the tobacco blend currently used in order to achieve the target DPM/SN figures.

Due to cost reasons, the second possibility was chosen and approved. Only the Austrian non-tobacco materials should be considered for the development.

Description of samples and results

The same cigarette construction, provided with discreet filter dilution (electro-perforated Z3/60 tipping paper from Tann combined with Wattens FY-HP-40 K wrap paper) was used for trials carried out using two tobacco blends :

- Standard MARLBORO AUSTRIA (ML 002)
- Modified blend

For a description of the prototypes and their comparison with the standard MLF AU, see the table on a following page.

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Comments:

Only prototype No 2 P using the standard ML 002 blend achieved the objective as far as the CO-reduction, DPM delivery and taste are concerned.
It should be noted that in view of the MARLBORO tobacco situation in Austria, the blend composition will be completely revised and a new leaf formula will be established. Based on the latter, a new series of trials is planned for December/January.

B. Singer

ZDS/cap/OCTOBER 29, 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT NAME : C O U N T R Y A U | PROJECT NO : 352 | PROJECT LEADER : ZDS | DATE : 10.26.1981

PROTOTYPE NO		1 P	2 P	MLF *
BLEND NO		Modified	ML 002	ML 002
TA	%	1.51	1.49	1.49
NITRATE-NITROGEN	%	0.23	0.23	0.23
REDUCING SUGARS	%	8.9	8.9	8.4
FORMAT : DIAMETER	mm	7.93	7.94	7.95
FILTER LENGTH	mm	20	20	20
CIGARETTE LENGTH	mm	79	79	80
TOTAL WEIGHT	mg/cig.	1036	1054	1045
TOBACCO WEIGHT AT 12 % O.V.	mg/cig.	794	813	816
CIGARETTE RTD	mm WG	102	100	118
DILUTION	%	18	18	0
CIGARETTE PAPER		WP 60	WP 60	WP 60
TIPPING PAPER		Tann Z3/60	Tann Z3/60	Tann non-porous
FILTER : TYPE		Single	Single	Single
TOW		3.4 I / 46'000	3.4 I / 46'000	3.4 I / 46'000
PAPER		FY-HP-40 K	FY-HP-40 K	FY-100-0.80
RTD	mm	67	66	64
DPM	mg/cig.	15.6	16.1	17.2
SN	mg/cig.	0.94	0.03	1.06
CO	mg/cig.	17.1	15.7	17.0
NO	mg/cig.	0.23	0.23	0.30
PUFF COUNT		9.4	9.6	9.2

THE CIGARETTES ARE SMOKED ON A PM 20 PORTS.

* : C.I.R. 6 - 7

0001440S7

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : CIGARETTE DEVELOPMENT 4

PERIOD COVERED : SEPTEMBER 25 - OCTOBER 26, 1981

WRITTEN BY : Toïmil-R. (RAT)

PME CIGARETTE DATA BANK

Objective

To introduce all the parameters of a project in the computer in order to be able to make the utmost use of the information on the projects.

Summary

After having defined the different screen images of the information on a project, the EDP Services in Serrières started in September the introduction of programmes which will enable the physical and chemical parameters of different materials to be memorized.

Present situation

The analytical criteria list (basis of data selection) was brought up to date. Some parameters, as well as the definition of the mini-maxi tolerances, should be regrouped.
The programme of memorizing the material characteristics, i.e. cigarette paper, tipping plug wrap and filtration material, was defined. The introduction of the data should be started during the last week of October.

Follow-up

In parallel with the introduction of materials, the EDP Services are continuing with the programing in order to memorize filter characteristics.

RAT/cap/OCTOBER 28, 1981

0000144058

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : CIGARETTE DEVELOPMENT 5

PERIOD COVERED : SEPTEMBER 23 - OCTOBER 23, 1981

WRITTEN BY : Du Bois-J.-H. (JHD)

E U C

Objective

- To establish a detailed study of our 1980 activities concerning "Marketing / Operations" and R & D projects.
- To study a system of planification which would enable each person concerned to know which things have to be done and when.

Results

No new developments can be reported this month.

Follow-up

The problems still pending will be studied with IBM since they have software for the GERT type of network. The Cigarette Data Bank will also be consulted as it may well be able to help us to solve these problems.

1000144059

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

383 HELIUM

Objective

To produce a 100-mm cigarette with a total weight of less than 850 mg/cig.

Results

To objective was achieved with prototype 3 P.
This prototype has a total weight of 824 mg, a compressibility of 3.59 mm, a puff count of 6.3 and a DPM of 9.3 mg.
The blend has 60 % of Burley ETNA in a MLF blend and the other specifications are the same as those of the MLH cigarette.

Follow-up

By using a slow burning cigarette paper, we expect to increase the puff count.
We will try to perform a total expansion of a MLF blend.
Should this not succeed, a MLF blend will be produced by substituting the different types of tobaccos by the ETNA counterparts (FC and Burley).

0001144060

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

386 COCONUT

Objective

DPM : 14 mg/cig.
CO : lower than 10 mg/cig.
The other characteristics remaining, if possible, the same as those of MLF.

Results

Prototypes with Filtrona's COSTAR 2 filters were produced and we came out with a prototype having a DPM of 13 mg/cig., a CO of 4.9 mg/cig., a puff count of 11, a total RTD of 29 and a dilution of 60 %.
Another prototype has a DPM of 18.4 mg/cig., a CO of 9.8 mg, a puff count of 10.5, a total RTD of 39 and a dilution of 44 %.

Follow-up

Fast burning cigarette papers will be tested with the aim of decreasing the puff count and Filtrona will be asked to produce higher RTD segments on the COSTAR 2 filters.

JHD/cap/OCTOBER 28, 1981

0000144061

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : MATERIAL DEVELOPMENT

PERIOD COVERED : SEPTEMBER 28 - OCTOBER 28 1981

WRITTEN BY : Erkohen-E. (ELE)

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1. NEW FILTRATION MATERIAL

Eastman Tow 5.0/60.000 Y

Objective

Search for a new filtration material in order to attain the objective of project COCONUT (386).

Summary

Based on the results given by the cigarette construction model for project COCONUT, Eastman was asked to supply us with an 8.0 denier per filament tow with a high total denier. Although smoke objectives were attained by using this type of tow, we noticed that the RTD of the cigarette is lower than the estimated one (1). From an economic and machinability point of view the tow is not adequate (2). Eastman submitted a 5.0/60.000 Y tow that will give a higher RTD while maintaining filter efficiency at the same level.

Follow-up

The 5.0/60.000 Y tow will be evaluated on the basis of its capactiy curve. Filters 108 mm long will be made at its optimum point. These filters will be used to make MLF-CH cigarettes with 40% - 45% dilution.

2. NEW EXPERIMENTAL HOT MELT ADHESIVE XB-525

Objective

Search for a new hot melt adhesive for ultraporous plug wraps (300 - 1000 K).

400014062

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

Summary

Six bobbins of ultraporous plug wraps were received last year (3). Due to bleed-through of the adhesive, it was not possible to glue the plug wraps at the speed of 400 m/min. on the rod makers. Ecusta was asked to supply us with an adequate type of hot melt adhesive. Recently we received 10 kgs of XB-525 hot melt adhesive. Ecusta claim that they have been recently working successfully on their projects with this material.

Follow-up

Test runs will be made with this hot melt adhesive at the speed of 400 m/min. to check the adhesive ability.

3. TIPPING PAPER

Malaucène Micro-Laser Perforated Tipping Paper

Objective

Possible replacement of existing tipping paper on MLF-CH and MLK-CH brands with laser type perforated tipping paper.

Summary

MLF-CH and MLK-CH cigarettes are produced with Benkert Z3/60 electro-perforated tipping paper (air permeability: 60 l/h/4 cm^{-1}). Due to the deterioration of Benkert's quality, the perforation of the tipping has become visible. Lately new MLK-CH samples were prepared by using laser perforated tipping paper (qualities 3M 011.6.5, 3M 0,15.4.5, 2M 0,22.7.5, 4M 0,075.5.5) and compared with MLK-CH cigarettes made with Z3/60 tipping paper. From the delivery point of view, no significant difference was noted (1).

Results of Taste Evaluation

The MLK-CH cigarettes with 2M 0,22.7.5 and 3M 0,15.4.5 tipping paper were evaluated in a duo-trio test, then by Panel B and Panel A. The "duo-trio" test and Panel B found no significant difference between trial and control cigarettes. But Panel A found that the cigarettes did not give enough MLF characteristics.

2000144063

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

Follow-up

The remaining trials are still under evaluation and will be "duo-trio" tested. Based on the results, a mail-out test might be organized.

4. ASSISTANCE TO PROJECTS

VOITTO

Based on the results given by the cigarette construction model, a 2.5/55.000 Y tow was proposed as a filtration material with 73% dilution in order to attain the objectives of this project.

References

(1) Erkohen-E. Monthly Report
(2) Erkohen-E. Report on New Materials (September 1981)
(3) Erkohen-E. Monthly Report (August 1980).

E. Erkohen

ELE/nod/OCTOBER 30 1981

000144064

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : TOBACCO STUDIES

PERIOD COVERED : SEPTEMBER 29 - OCTOBER 27 1981

WRITTEN BY : Joseph-L. (LIJ)

TOBACCO LOT ANALYSES

Introduction of Inputs on EDP

Partial analytical results of five lots were introduced in the PME Analytical Data List this month.

Lots under Evaluation

Sixty lots.

Lots Available, but not yet Analyzed

One hundred and fifty-eight lots.

ASSISTANCE TO OTHER PROJECTS

REFERENCE CIGARETTES

Three reference cigarettes were made this month, one with the blend GBØ12Ø8Ø5 NØ2 for the project TENNIS "UK", the others with blends SWØ2427Ø1 NØ2 and Ø54-427BSØØ4 for project KURT.

LEAR Project

We have received one sample of BUR strips blend (Control). The analyses are under way.

COMMONWEALTH Project

The smoke deliveries of several COMMONWEALTH blends were simulated with the Smoke Yield Prediction Program.

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

TLA Data Base

The different APL programs for reading and selecting parts of the TLA Data Base have been modified and adapted for outside users by the introduction of HELP and DESCRIBE functions.

LIJ/nod/OCTOBER 29 1981

0000144066

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : INGREDIENT AND FLAVOUR DEVELOPMENT

PERIOD COVERED : AUGUST 25 - OCTOBER 25 1981

WRITTEN BY : Fatton-J.-P. (JPF)

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388 / BUCA

Objective

Reduction in the ingredients in the Burley casing without significantly changing the taste.

Description

Prototypes 10p, 11p, 12p are now available (description in 1).

Follow-up

A duo-trio test will be organized to compare these prototypes with MLF cigarettes.

208 / TENNIS

Objective

Fine tuning of the taste.

Description

Three versions of EAC 46 were made:

EAC 46/1 containing 50% of the ingredients

EAC 46/2 containing 75% of the ingredients

EAC 46/3 containing 125% of the ingredients.

Three batches of 20 kg of tobacco were sprayed with these flavours, and cigarettes were made.

0001440652

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

Follow-up

The fine tuning and recipe modification will be made following the comments of the subjective evaluation.

360 / MIAMI

Objectives

To develop a full flavoured American blend cigarette acceptable for Maryland cigarette smokers.

Description

Some modifications were made in the flavour system:

EBC-24 was applied only on the US part of the Burley tobacco

ETF-1 was applied only on the US part of the Burley tobacco

MF-PC was applied on the bright tobacco and Burley substitutes

EAC-85 is a modified version of EAC-25 containing less SFC-173 and additional rum and humectants applied on the cut ra

CONTACTS WITH SUPPLIERS

Three samples were received from I.F.F.:

- Whisky aroma nature identical No. 15.01.9784
- Rum aroma nature identical No. 15.96.0703
- Peanut flavour nature identical No. 15.96.0767.

One sample was received from F.F.B. (La Tour-de-Peilz):

- Whisky aroma nature identical No. 1337.

One sample was received from Dougoud (Geneva):

- Rum nature identical No. E 2239.

0001440968

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

Four samples were received from PM Richmond for project FLAVOUR LIBRARY:

- SFC DL 8
- SFC DL 12
- SFC DL 13
- SFC DL 14.

All these samples will be evaluated and the results will be sent to the suppliers.

Reference

1. Fatton-J.-P. Monthly Report June 25 - July 25 1981.

JPF/nod/OCTOBER 27 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE	:	MATERIAL TESTING
PERIOD COVERED	:	AUGUST 26 - OCTOBER 21 1981
WRITTEN BY	:	Balliger-P. (PBA)

POROUS PLUG WRAP

BRODANO BOP 0975 (27.5 K)

WATTENS FY HP 40 K

In order to widen our range of suppliers of filter paper for Marlboro Europe, Wattens and Brodano were asked to develop a prototype similar to the standard quality FU POV 40 L from S&H.

From the results of the first tests carried out at FTR it was found that only the variant Wattens FY HP 40 K satisfied all the requirements as regards taste and smoke yield.

Consequently, an industrial trial is currently being performed at FTR to test this material and judge its performance on machines.

CIGARETTE PAPER

MIGUEL Y COSTAS verge extra 1024 M 85

GLATZ verge V 6/2 LN 53044

These two new qualities of cigarette paper should enable us to widen our choice of materials suitable for the Marlboro KS Germany, which is currently being produced with the standard quality Pela 200 Mn from S&H.

As soon as we receive the test cigarettes being produced with these materials at PMC-Berlin, they will undergo analytical and subjective evaluation.

TIPPING PAPER

Cork tipping paper standardization to US colour.

Following the first series of tests carried out on the colours of cork tipping papers, new development work was undertaken concerning the tonality and composition of inks. This led to a new colour, nearer to the reference (more reddish), being produced.

Taste evaluation of cigarettes produced with this paper will soon be performed.

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

TECHNICAL SHEETS

Porous Plug Wrap

No 23 2535 Miguel Y Costas 30 HP 20 K
23 2536 Miguel Y Costas 30 HP 40 K
23 2537 Miguel Y Costas 30 HP 60 K

Cigarette Paper

No 30 0058 Glatz V 6/2 LN 53044
30 0059 Miguel Y Costas Verge extra 1024 M 85

Lopes-F.

0001440711

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : CIGARETTE AND SMOKE ANALYSIS

PERIOD COVERED : SEPTEMBER 23 - OCTOBER 23 1981

WRITTEN BY : Senehi-F (SEF)

CIGARETTE INFORMATION REPORT

During this period, several cigarettes were diluted or their dilution was increased in order to decrease the smoke yield.

Brands	Printed values		Manufacturer	Country of sale
	Tar	SN		
Hobby Soft 80/F	14	0.8	Austria T.	Austria
Belga Rouge 70/F	-	-	Tabacofina	Belgium
Peter Stuyvesant Extra Mild 84/F	5.5	0.42	Turmac Int.	France
Peter Stuyvesant 83/F	-	-	Turmac Int.	Netherlands

Brand	Tar (mg/cig)		SN (mg/cig)		CO (mg/cig)		Dilution %	
	N.V. (1)	F.V. (2)	N.V. (1)	F.V. (2)	N.V. (1)	F.V. (2)	N.V. (1)	F.V. (2)
Hobby Soft	14.8	16.7	0.90	0.93	15.2	19.4	22	-
Belga Rouge	18.6	18.1	1.70	1.57	12.6	14.2	14	-
Peter Stuyvesant Ext.Mild	4.6	5.3	0.32	0.44	6.6	5.5	59	38
Peter Stuyvesant	14.3	16.7	1.07	1.19	16.9	16.6	10	-

(1) N.V. = New version

(2) F.V. = Former version

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

COMPARATIVE RESULTS BETWEEN THE LABORATORY OF THE GOVERNMENT CHEMIST, UNITED KINGDOM (LGC) and QA PME

The following table shows the tar, SN and CO values obtained by LGC, compared with those obtained by QA PME on the same Marlboro samples (Survey 15): (1)

Month(1981)	Tar(mg/cig)		SN(mg/cig)		CO(mg/cig)	
	LGC	QAPME*	LGC	QAPME	LGC	QAPME
January	15.63	16.25	1.27	1.31	15.48	16.2
February	16.12	15.74	1.26	1.33	15.56	14.9
March	16.41	15.74	1.35	1.31	15.45	17.1
April	15.42	15.53	1.30	1.28	14.84	15.8
May	16.73	16.25	1.35	1.36	15.45	16.8
June	15.58	16.45	1.30	1.30	15.33	17.3
$\bar{X}$	15.98	15.99	1.31	1.32	15.35	16.35

Except for the CO values, the results obtained by the LGC were very close to those obtained by QA PME, and the Marlboro King Size remained in the "low to middle tar" group.

PRODUCT REPORTS

Product reports were written on the following new or modified brands:

Brand	Manufacturer	Country of Sale
Johnny 84/F (new brand)	Austria T.	Norway
More Menthol 120/F (line extension)	Reynolds	Sweden
Blend Ultima 80/F (line extension)	Swedish Tobacco	Sweden
Kent Special 84/F (replaces Kent Special Mild Aroma)		Switzerland

REFERENCES

1 Letter from Senehi-F (October 21, 1981)

KEILING-E

SEF/edk/NOVEMBER 3 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : QA ANALYTICAL SERVICES

PERIOD COVERED : SEPTEMBER 18 - OCTOBER 29 1981

WRITTEN BY : Widmer-A (ALW)

3.2.1. TRIALS WITH NEW SUPPLIES OF TOBACCO INGREDIENTS

- Glycerine (STAERKLE & NAGLER, Zürich; Producer: SPIGA-NORD, Genua (It) / yellow sheet 6105, 250 kg)

  First industrial trial (MLF-CH)
  Laboratory: The sample is within specifications.
  Smoke analyses: No significant difference between the standard and the trial was found.
  Subjective evaluation: A significant difference between the standard and the trial was found.
  The trial was rejected.
  Concluded on October 2, 1981

- Honey (NARIMPEX S.A., Bienne; origin: YUCATAN (Mexico)/ yellow sheet 6163, 100 kg)

  The sample corresponds to our specifications.
  100 kg for an industrial trial were ordered (26/10/81)

3.4.1. TRIALS WITH NEW SUPPLIES OF FILTER COMPONENTS

- Polyethylene glycol 600 (HODAG CHEMICALS, Skokie(USA)/ yellow sheet 5949, 200 kg)

  First industrial trial (MAA-CH)
  Laboratory: The sample is within specifications.
  Smoke analyses: No significant difference between the standard and the trial was found.
  Subjective evaluation: A significant difference between the standard and the trial was found.
  The trial was rejected.
  Concluded on September 28, 1981

5.1. PRODUCT QUALITY

- Spots on MLK-cigarettes (1)

  In PMG Berlin a high number of MLK-cigarettes with spots were detected.

  The samples submitted showed no irregularities as regards the contents of humectants on the cigarettes (consequently there was no error in the application of the solutions) and the tobacco additives used. However, in one sample out of five of spotted cigarettes, a high individual moisture content was found (15.9 %). From this it was concluded that the spots were caused by a too high local moisture.

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

Later this supposition was confirmed when a slight crack in the dryer in Berlin was detected, where vapour could come into contact with a limited quantity of tobacco.

5.3. ASSISTANCE TO OTHER COUNTRIES

- Analyses for the ETNA-plant in PMG Munich
  Humectants in tobacco (4 samples)

- Analyses for the ETNA-plant in PMH Bergen op Zoom
  Humectants in tobacco (23 samples)

5.4. SERVICES FOR OTHER GROUPS

- Analyses for the research department
  Chlorides in extracts (42 samples)

- Analyses for the Product Developement Department
  Ash-content, K, Mg, Ca and Na by Atomic Absorbtion in crimped paper for filters (2 samples)

- Analyses for the Process Development Department
  SiO_2 in dust and tobacco (5 samples)

REFERENCES

1 Letter from Schwarb-A to Lopes-F (August 24 1981)

ALW/edk/NOVEMBER 5 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : SPECIFICATIONS

PERIOD COVERED : SEPTEMBER 25 - OCTOBER 24 1981

WRITTEN BY : Flury-C. (CAF)

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1. Specifications - General

1.1. The project leaders of PME Product Development now have the possibility to use SOPA's small EDP programme for the calculation of cigarette prototypes (size and weight).

Due to a user extension, they are also allowed to consult the cigarette specs (size and weight) of all the production centres and licensees.

1.2. The QA managers have been informed that the volume of 12.2060 MF-AC has to be brought back to the previous standard of 29 litres when ESTHER is not used in the blend. 31 litres of MF-AC are applied to blends containing ESTHER.

2. FTR Switzerland

2.1. Project specs have been established for a new brand, WEF WESTERN FILTER (FLORIDA-360). This American blend cigarette, in a 20s soft pack, will be sold in the German-speaking part of Switzerland first of all.

2.2. Several packing specs have been modified as polypropylene film is required on packs and bundles exported to African countries.

3. PMG Germany

3.1. Processing specs have been produced for blend ML 030 Marlboro Standard, processed by PMG Berlin on behalf of PMH Bergen op Zoom.

3.2. The processing specs were modified for :

- ML 025 LAG use of 4% ETNA (like ML 010 MLK-IT)
- ML 026 LMB use of 4% ETNA (like ML 010 MLK-IT)
- ML 012 MLN increase in ETNA rate from 2.2 to 4%
- MG 005 MER-UK use of ETNA ex Munich instead of ex Serrières.

3.3. A new processing spec is available for IS 001 improved stems, manufactured by PMG Munich on behalf of PMH Bergen op Zoom.

3.4. The following cigarette-making specs were modified :

- PMU 01 tobacco weight increase from 641 to 655 mg (same weight as PMS 01 FR)

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

- MLN 01)
- LMB 01) revised tobacco weight due to the change in
- LAG 01) blend composition

3.5. AIA 042 Arizona, sold in Germany, will be packed in a display carton instead of in bundle paper.

4. Licensees

4.1. Finland :

- A new packing spec BEO 301, Belmont Extra Mild in a hinge lid pack for duty free sales has been produced.
- New specs have been prepared for the licensee AMER TUPAKKA OY Hyrylä, for the manufacture of L&M Filter Long Size LMB 09 (two versions : LMB 334 hinge lid pack for sale in Norway and LMC 303 soft pack for sale in Finland). Up till now, this product has been manufactured by SUOMEN TUPAKKA OY, Helsinki but their contract will expire at the end of this year.

4.2. Hungary :

New complete specs were produced for the manufacture of MPM 01 Multifilter King Size Soft to be produced by the Tobacco Factory Eger, for sale in Hungary.

4.3. USSR :

The recipes and filter-making specs have once again been modified for project COSMOS.

5. PME Standard Recipes

5.1. PM Belgium's use of 66% invert sugar (10.0750) has been made official by adapting two recipes (ARK-PC and AVI-PC) and in addition a new recipe has been established (CD-4J-PC).

6. PME Material Specifications

6.1. Several sections of the "Usage of Material" reference book have been updated.

6.2. It is planned to abandon the definition of "PME cigarette paper quality 006 or 004" etc as apparently it no longer corresponds to the actual situation in several cases. Discussions are pending to redefine the cigarette paper status.

6.3. Several material specifications were submitted to the suppliers :

- 2 specs for tows to Rhodiaceta, Germany
- 1 spec for a filter to Baumgartner, Switzerland
- 1 spec for cigarette paper to Ecusta, USA
- 5 specs for tipping papers to Malaucène, France
- 35 specs for tipping papers to Benkert, Germany

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

- 1 spec for HL blanks to Interdruck, Germany.

7. Specifications for EDP (AMAPS package from COMSERV)

A project team has been established and has been working since October 12, 1981. The first days following its creation were spent with the COMSERV representative in order to familiarize him with the PM organization and the tobacco industry.

A whole week was reserved for an initial training course for PM members of the team in order for them to become familiar with the AMAPS programme package.

Contact is now being made with several services of the FTR organization which will be involved in the project.

CAF/jud/NOVEMBER 10 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE	:	INSTRUMENTATION AND PROCESS AUTOMATION
PERIOD COVERED	:	23 SEPTEMBER 1981 - 22 OCTOBER 1981
WRITTEN BY	:	Thévoz-M. (MIT)

Automation of the Smoking Laboratory (Project COLDAC)

We have just received the instruments for this project (computers and peripherals). Between 2 and 16 November we shall start to put the RTE IVB system into operation. This will include setting up the following software which will enable us to programme our application more efficiently :

IMAGE 1000	:	Data-base management and query software;
DATACAP 1000 II	:	Software for terminal management on a multi-point line ("Data-link") with interactive collection of the analytical results;
GRAPHIC 1000 II	:	Software for processing graphic peripherals and for evaluating the analytical results;
EDIT 1000	:	Text and programme editor.

We shall also install the FORTRAN 4X and the BASIC 1000D which are completed by a large library containing scientific routines.

RTD/DIL Data Processing

The programme for the monthly and daily analyses of the RTD and DIL results is currently being tested in the QA laboratories.

Some problems were encountered with the direct link-up of the HP 85 to the SODIM measuring head and we are currently trying to solve them. These problems arise partly from different electrical interferences from the production machines. The direct link-up has been postponed until the end of November.

Construction of Measuring Instruments

The series of compressibility instruments (FTR model) planned for the QA laboratories in Richmond are being produced according to schedule. We are also now finishing small units for various PME affiliates; these units are used for automatically emptying cigarettes.

Nitrate-Monitoring

The transfer of the instrument used for this is currently being prepared. We are now adapting the HP 85 programmes to improve

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

security and to simplify its usage. To achieve this we shall introduce an auto-start programme to set off the system again after a power failure. When this happens, the programme will search default parameters in a file on the magnetic cartridge of the HP 85. The parameters which are periodically updated should state the nitrate values obtained during the last hours of regulation.

MIT/jud/OCTOBER 22 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

PROJECT TITLE : PATENTS

PERIOD COVERED : SEPTEMBER 17 - OCTOBER 16, 1981

WRITTEN BY : Mandiratta-J-C. (MJA)

NEW PATENT APPLICATIONS

The following two applications have been filed this month :

Case 28246 West Germany
Flow-through process for microbial degradation of tobacco constituents containing nitrates.

Case 28263 European Application
Designation: CH, NL, BE, GB, FR, IT and DB.
Process of enzymatic deproteination of tobacco (Protagoras).

IMPROVEMENTS IN A GAS CHROMATOGRAPH

Prior art has been found which is very close to the above-mentioned filing in Luxemburg. In spite of the fact that the PME Patent Committee decided, on May 13, 1981, to file this application via EPO in CH, DB, FR and GB, this case has been reviewed and it has been decided not to file this application elsewhere. Instructions have been given to Reddie & Grose in London.

PROJECT EXIT

On the recommendation of Dr. Hach a poor man's opposition has been filed in the French Patent Office.

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

CHARCOAL SILICAGEL FILTER PATENT APPLICATION IN THE NETHERLANDS

Search report from the Dutch Patent Office was received and it was decided not to follow up this application any further.

FRENCH PATENT 2387746 — Process and Machine for Perforating Cigarette Paper

On the request of PME Lausanne, an initial evaluation of the above-mentioned patent was carried out.

MJA/mle/October 20, 1981

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Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000

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NOV 23 1981
U.S. SOGENE

Source: https://www.industrydocuments.ucsf.edu/docs/xyxk0000